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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/764,242	01/19/2001	George Wong	CS98-070B	8930
28112	7590	07/06/2004	EXAMINER	
GEORGE O. SAILE & ASSOCIATES 28 DAVIS AVENUE POUGHKEEPSIE, NY 12603			DIAZ, JOSE R	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/764,242

Applicant(s)

WONG, GEORGE

Examiner

José R. Díaz

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-20 and 22 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 21 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. Claim 21 should be cancelled since the claim recites the same limitation now incorporated in step (a) of claim 18.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 18-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng (US Pat. No. 6,171,976 B1) in view of Applicant's admitted prior art.

Regarding claim 18, Cheng teaches a semiconductor substrate (see fig. 6) comprised of:

(a) a patterned conductive layer (see col. 2, lines 64-67) forming portion of semiconductor devices (210) and patterned fill layer (212) in said kerf areas (204) (see fig. 6), wherein a space (214) is provided between the patterned fill layer (212) and the die areas (202) (see fig. 4);

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(b) a spin-on-glass layer (220) over said patterned conductive layer (210, 212) converted to a planar silicon oxide layer (see col. 3, lines 29-31);

(c) an insulating layer (216) on said silicon oxide layer (220) (see fig. 6).

In addition, Cheng teaches that the disclosed invention is usable for VLSI and even for ULSI process (see col. 1, lines 19-20).

However, Cheng fails to teach that the space is not greater than about 2  $\mu\text{m}$ , and the structure described in elements (a) through (c) is formed for each additional patterned conducting layer, one upon the other, required for said integrated circuit, and.

With regards to the space of not greater than about 2  $\mu\text{m}$ , it would have been obvious to one of ordinary skill in the art to include a space of not greater than about 2  $\mu\text{m}$ , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Huang*, 40 USPQ2d 1685,1688(Fed. Cir. 1996) citing *In re Aller*, 105 USPQ 233., 235 (CCPA 1955). The ordinary artisan would have been motivated to modify Cheng in the manner described above for at least the purpose of improving the uniformity of the chemical mechanical polishing process and avoiding the dishing effect (col. 2, lines 9-11 of Cheng).

With regards to the limitation about a structure having additional patterned conductive layers, one upon the other, Applicant teaches that it is well known in the art to include more levels of conductive layers typically separated by insulating layers to interconnect various levels of conductive interconnections (see page 2, lines 2-8).

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Cheng and Applicant's admitted prior art are analogous art because they are from the same field of endeavor as applicant's invention. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include more levels of conductive layers typically separated by insulating layers. The motivation for doing so, as is taught by Applicant, is effectively interconnecting various levels of conductive interconnections (page 2, lines 2-5). Therefore, it would have been obvious to combine Applicant's admitted prior art with Cheng to obtain the invention of claims 18-19 and 21-22.

Regarding claim 19, Cheng teaches that the conductive layer is a metal (see col. 4, lines 39-40).

Regarding claim 22, Cheng teaches that the kerf areas have a width of between about 120-600  $\mu\text{m}$  between said die (see col. 2, lines 58-59).

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng (US Pat. No. 6,171,976 B1) in view of Applicant's admitted prior art, and further in view of Lou (US Patent No. 5,759,906).

Regarding claim 20, Cheng teaches that the patterned fill layer (212) and the device layer (210) are formed from the same material (see col. 2, lines 64-67).

However, Cheng is silent with respect to the metal material used to form said patterned conducting layer. Lou teaches that it is well known in the art to form the patterned conducting layer of aluminum having a thickness of about 6000 Å (see col. 5, lines 34-39 and Figs. 3-11).

Cheng, Applicant's admitted prior art and Lou are analogous art because they are from the same field of endeavor as applicant's invention. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a patterned conducting layer of aluminum having a thickness of about 6000 Å. The motivation for doing so, as is taught by Lou, is to provide a high electrical conductivity (col. 5, lines 33-34). Therefore, it would have been obvious to combine Lou with Cheng and Applicant's admitted prior art to obtain the invention of claim 20.

### ***Response to Arguments***

5. Applicant's arguments filed April 26, 2004 have been fully considered but they are not persuasive.

Applicant argues that Cheng does not teach a spacing of not greater than 2 µm (page 4 of remarks). Although the examiner concedes that Cheng does not explicitly disclose the claimed spacing range, Applicant fails to provide evidence indicating that such spacing range is critical. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233, 235 (CCPA 1955).

It is further noted that the specification contains no evidence of unexpected results. It has been held that optimization of a working range is *prima facie* obvious in the absence of new or unexpected results. *In re Huang*, 40 USPQ2d 1685,1688(Fed. Cir. 1996).

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In response to applicant's arguments against the references individually (i.e. see page 4 of remarks: "the Applicant's claimed structure is a multilevel structure, while Cheng's structure is a single-level structure"), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the instance case, Applicant's admitted prior art is cited to teach the limitation about the multilevel structure. See rejection above.

Therefore, the rejection is considered to be proper.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


***Correspondenc***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (571) 272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRD  
7/1/04

  
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